

Abstract

A Fabry-Perot cavity has a pair of partially transmissive, partially reflective, surfaces. A first of the surfaces is flexibly suspended adjacent and parallel to a second of the surfaces. A gap exists between the surfaces. A variable electrostatic potential permits this gap to be adjusted.

A translucent chemical layer is disposed on the first surface. A photosensor is attached to the second surface. Light irradiates the photosensor through the chemical layer and the first and second surfaces wherein the light is also partially reflected between the surfaces.

A sensing environment is provided wherein an agent undergoes a reaction with the chemical layer as well as an environment wherein the reaction does not occur.

The output of the photosensor is measured to assess a change in spectrum and spectral intensity for each of the sensing environments. The gap between the surfaces as well as the light used are selected to provide an optimum photosensor output